

DCS SERIES

Ultra-High Purity Dual Containment Diaphragm Valves



PRODUCT APPLICATIONS

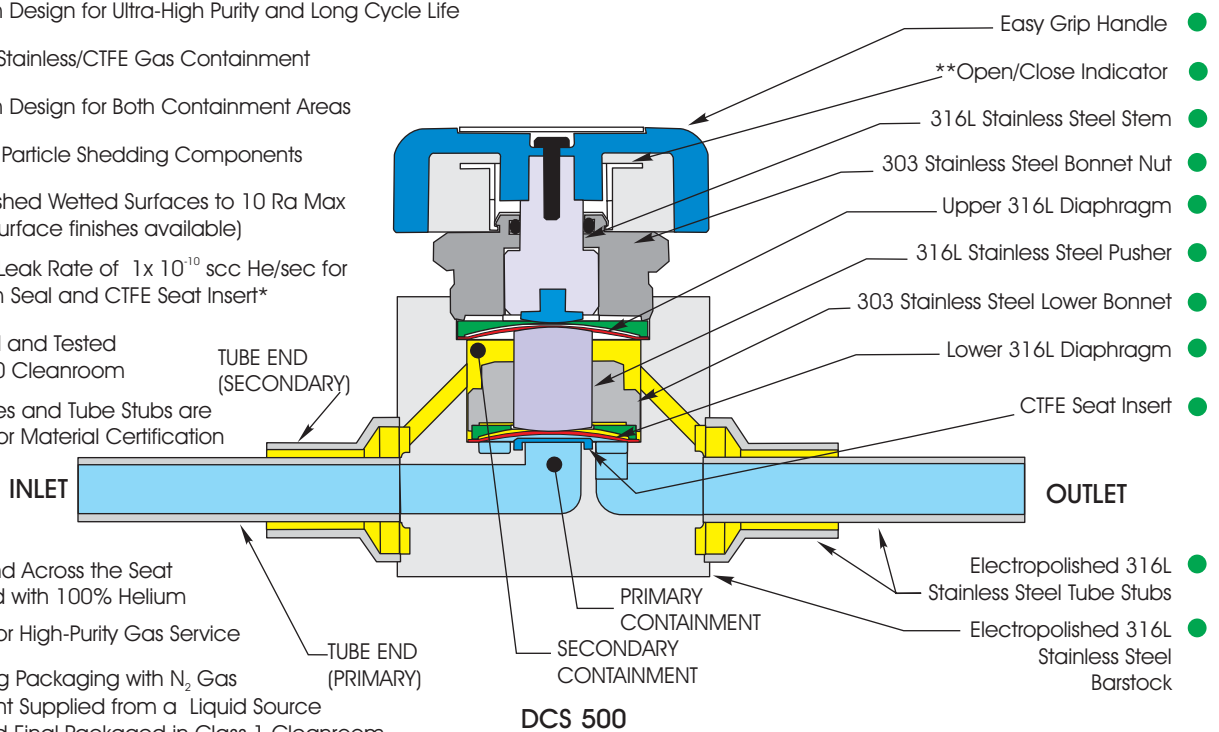
This DCS (Diaphragm Design)[†] valve series is intended for bulk gas or solvent double containment distribution service where cleanliness and purity are of the utmost importance. These springless, packless, diaphragm valves control the passage of gas or solvent through the primary tube while providing a complete secondary containment flow path. The secondary flow path remains open regardless of the primary passage being opened or closed.

PRODUCT FEATURES

- ▶ Dual Containment Directly Through the Valve
- ▶ Diaphragm Design for Ultra-High Purity and Long Cycle Life
- ▶ High-Purity Stainless/CTFE Gas Containment
- ▶ Diaphragm Design for Both Containment Areas
- ▶ No Internal Particle Shedding Components
- ▶ Electropolished Wetted Surfaces to 10 Ra Max (Optional surface finishes available)
- ▶ Maximum Leak Rate of 1×10^{-10} scc He/sec for Diaphragm Seal and CTFE Seat Insert*
- ▶ Assembled and Tested in CLASS 10 Cleanroom
- ▶ Valve Bodies and Tube Stubs are Serialized for Material Certification
- ▶ Inboard and Across the Seat Leak Tested with 100% Helium
- ▶ Cleaned For High-Purity Gas Service
- ▶ Double-Bag Packaging with N₂ Gas Environment Supplied from a Liquid Source Purged and Final Packaged in Class 1 Cleanroom

*Excluding Permeation of CTFE

CONSTRUCTION MATERIALS



[†] U.S. Patent # 4,867,201

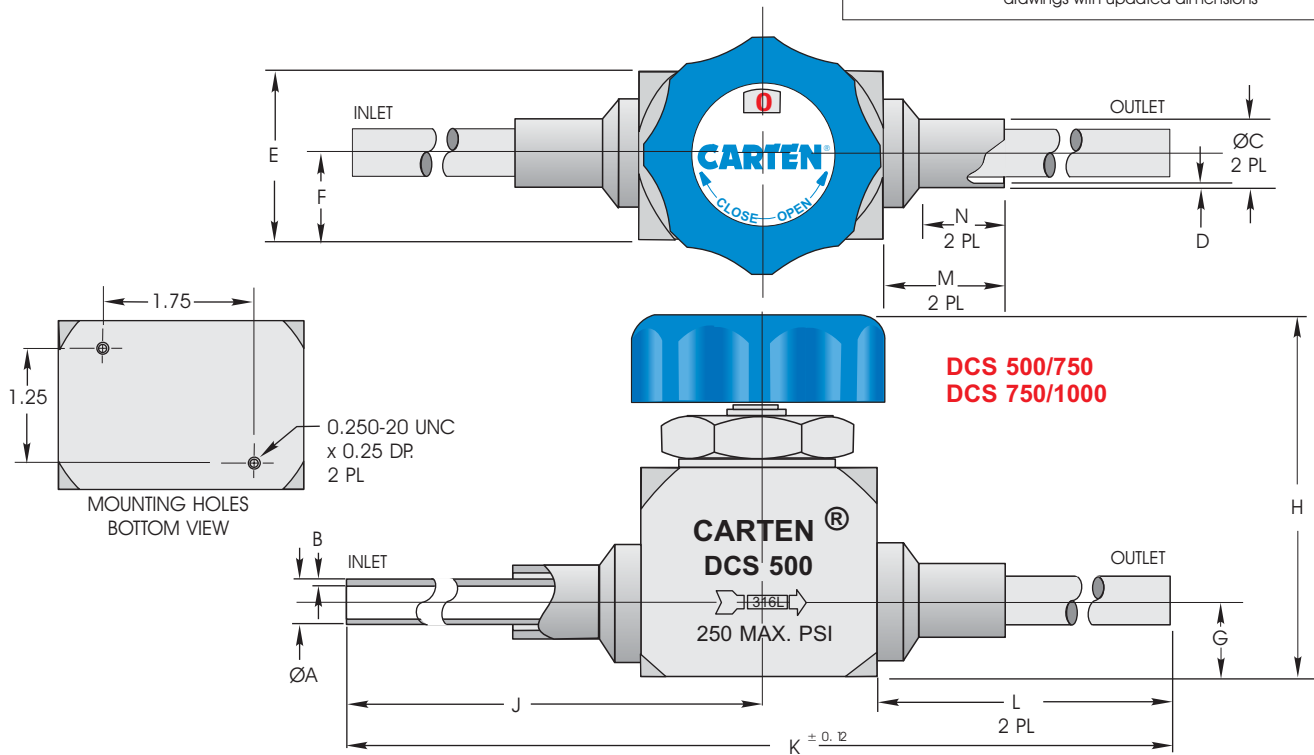
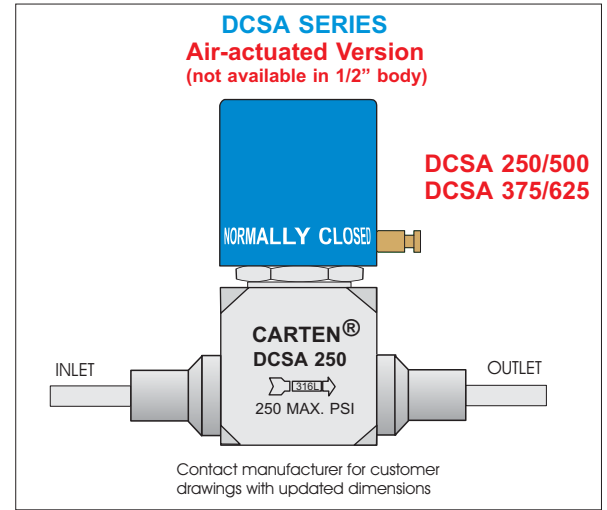
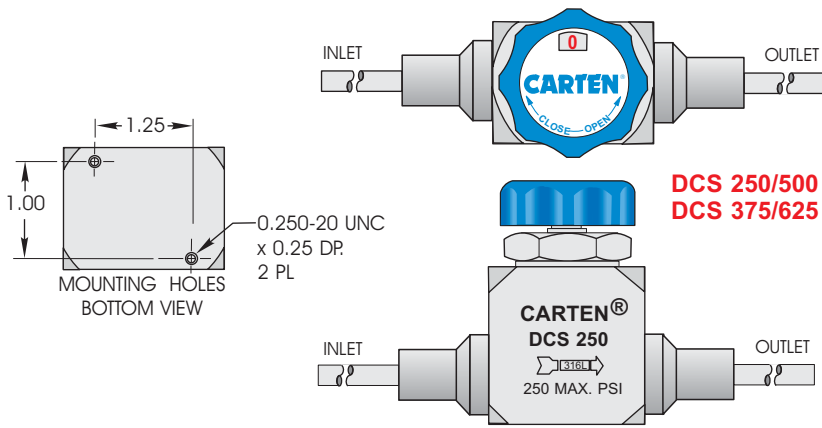
DCS SERIES - Technical Data

| | | | | | | |
|------------------------------------|--|--|---------------------------|--|-----------------------------------|-----------------|
| CONSTRUCTION MATERIAL | Primary Wetted Areas | 316L Stainless Steel, CTFE | HELIUM LEAK TEST | Inboard/across the seat | 1×10^{-10} scc/s He max. | Rated |
| | Secondary Wetted Areas | 316L Stainless Steel, 303 Stainless Steel | | | 1×10^{-9} scc/s He max. | Std. Production |
| MAXIMUM OPERATING PRESSURE | Primary and Secondary | Vacuum to 250 psi. (17 BAR) See application note on next page | CLEANLINESS AND PACKAGING | Helium leak test performed with 100% helium | | |
| | | | | Assembled and tested in CLASS 10 cleanroom. Purged and final packaged in Class 1 cleanroom. Double-bag packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with N ₂ gas environment supplied from a liquid source | | |
| ORIFICE | DCS 250 & 375 DCS 500 & 750 | 0.250 in. (6.35 mm) 0.437 in. (10.96 mm) | STANDARD FINISH | Electropolished to 10 Ra (0.25 Ra μm) on all wetted surfaces | | |
| OPERATING TEMP. RANGE | DCS Series | -22° F (-30° C) to 180° F (82° C) | OPTIONS | Surface finish: 5 Ra Particle, moisture, THC and O ₂ testing SEM and ESCA testing, Auger analysis Air-actuated versions (DCS 250 and 375 only) Material: VAR, VIM / VAR Handwheel color | | |
| FLOW COEFFICIENT (C _v) | DCS 250 DCS 375 DCS 500 DCS 750 | 0.41 0.41 1.2 1.2 | | | | |

Specifications are subject to change without notice.

**The open/close indicator provides open/close status at the fully open or closed positions. It is not intended to act as a metering or proportioning system.

DCS (DUAL CONTAINMENT) SERIES - Valve Dimensions



APPLICATION NOTE - DCS SERIES

A typical application utilizes a vacuum on the secondary line. However, the secondary line pressure can exceed the primary if desired. As the secondary pressure increases to more than 60 psi over the primary (for DCS 250) or 20 psi (for DCS 500), reduced primary flow rate could result. Increasing secondary pressure to more than 110 psi over the primary (for DCS 250) or 50 psi (for DCS 500), the flow in the primary will be essentially shut off.

APPLICATION NOTE - DCSA SERIES

The DCSA series is not intended for use in a vacuum application. Secondary line pressure should not exceed 14.5 psi (1 bar). Air-actuator is supplied with quick disconnect fitting to suite 1/4" O.D. pipe. Air-actuator requires 90-100 psi. air to open.

| Catalog No. | A* | B* | C* | D* | E | F | G | H | J | K | L | M | N | Weight Approx. |
|-----------------------|-------|-------|-------|-------|------------------|--------------------|-------------------|------------------|-------------------|-------------------|------------------|------------------|--------------------|----------------|
| DCS 250 - 035-500-049 | 0.250 | 0.035 | 0.500 | 0.049 | 1.75 (44.5mm) | 0.875 (22.22mm) | 0.625 (15.8mm) | 3.08 (78.2mm) | 4.00 (101.6mm) | 8.00 (203.2mm) | 3.00 (76.2mm) | 1.11 (28.1mm) | 0.750 (19.05mm) | 2 Lb 0.9 Kg |
| DCS 375 - 035-625-049 | 0.375 | 0.035 | 0.625 | 0.049 | 1.75 (44.5mm) | 0.875 (22.22mm) | 0.625 (15.8mm) | 3.08 (78.2mm) | 4.00 (101.6mm) | 8.00 (203.2mm) | 3.00 (76.2mm) | 1.11 (28.1mm) | 0.750 (19.05mm) | 2 Lb 0.9 Kg |
| DCS 500 - 049-750-065 | 0.500 | 0.049 | 0.750 | 0.065 | 2.00 (50.8mm) | 1.000 (25.4mm) | 0.687 (17.4mm) | 3.52 (89.4mm) | 4.25 (107.9mm) | 8.50 (215.9mm) | 3.00 (76.2mm) | 1.11 (28.1mm) | 0.750 (19.05mm) | 3 Lb 1.4 Kg |
| DCS 750 065-1000-065 | 0.750 | 0.065 | 1.000 | 0.065 | 2.00 (50.8mm) | 1.000 (25.4mm) | 0.687 (17.4mm) | 3.52 (89.4mm) | 4.25 (107.9mm) | 8.50 (215.9mm) | 3.00 (76.2mm) | 1.11 (28.1mm) | 0.750 (19.05mm) | 3 Lb 1.4 Kg |

* Metric tube sizes and wall thickness are available upon request

NOTE 1: All tolerances are ± 0.06 unless otherwise stated

NOTE 2: Dimensional drawings shown are for reference only. Please contact the manufacturer for customer drawings showing updated dimensions.

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